



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

**REGION 6
HOUSTON BRANCH
10625 FALLSTONE RD.
HOUSTON, TEXAS 77099**

August 19, 2011

MEMORANDUM

SUBJECT: Contract Laboratory Program Data Review

FROM: *for* *V. Humphrey* **Marvelyn Humphrey, ESAT Regional Project Officer
Environmental Services Branch (6MD-H)**

TO: Vincent Malott, Superfund Project Manager (6SF-RA)

Site : WEST CR 112 GROUND WATER

Case#: 41486

SDG#: MF4N61

The EPA Region 6 Environmental Services Branch ESAT data review team has completed a review of the submitted Contract Laboratory Program (CLP) data package for the referenced site. The samples analyzed and reviewed are detailed in the attached Regional data review report.

The data package is acceptable for regional use. Problems, if any, are listed in the report narrative. If you have any questions regarding the data review report, please contact me at (281) 983-2140.

ENVIRONMENTAL SERVICES ASSISTANCE TEAM

ESAT Region 6
10625 Fallstone Road
Houston, TX 77099

Alion Science and Technology

MEMORANDUM

DATE: August 19, 2011
TO: Marvelyn Humphrey, ESAT PO, Region 6 EPA
FROM: Sonya Meekins *SM* Data Reviewer, ESAT
THRU: Dominic G. Jarecki, ESAT Program Manager, ESAT *DGJ*
SUBJECT: CLP Data Review

Contract No.: EP-W-06-030
TO No.: 024
Task/Sub-Task: 2-12
ESAT Doc. No.: A024-212-0067
TDF No.: 6-10-531A
ESAT File No.: I-0419

Attached is the data review summary for Case # 41486
SDG # MF4N61
Site West CR 112 Ground Water

COMMENTS:

I. LEVEL OF DATA REVIEW

Modified CADRE review was performed for this data package.

II. CONTRACTUAL ASSESSMENT OF THE DATA PACKAGE

The CCS found the data package contractually compliant.

III. TECHNICAL USABILITY ASSESSMENT OF THE DATA PACKAGE

Some results were qualified because of technical problems. The significant problems are addressed below.

- A. Laboratory blank readings caused 11 selenium results to be qualified.
- B. The antimony, arsenic, beryllium, chromium, and selenium matrix spike recoveries were below the QC limit.
- C. The chromium serial dilution difference was above the QC limit.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE ROAD
HOUSTON, TEXAS 77099

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO.	41486	SITE	West CR 112 Ground Water
LABORATORY	SENTIN	NO. OF SAMPLES	19
CONTRACT#	EP-W-09-040	MATRIX	Water
SDG#	MF4N61	REVIEWER (IF NOT ESB)	ESAT
SOW#	ISM01.2	REVIEWER'S NAME	Sonya Meekins
SF#	302DD2CA6R6	COMPLETION DATE	August 19, 2011

SAMPLE NO.	MF4N16	MF4N25	MF4N40	MF4N56	MF4N64
	MF4N22	MF4N26	MF4N47	MF4N61	MF4N65
	MF4N23	MF4N33	MF4N48	MF4N62	MF4N66
	MF4N24	MF4N34	MF4N55	MF4N63	

DATA ASSESSMENT SUMMARY

	ICP
1. HOLDING TIMES	<u>O</u>
2. CALIBRATIONS	<u>O</u>
3. BLANKS	<u>M</u>
4. MATRIX SPIKES	<u>M</u>
5. DUPLICATE ANALYSIS	<u>M</u>
6. ICP QC	<u>M</u>
7. LCS	<u>O</u>
8. SAMPLE VERIFICATION	<u>O</u>
9. OTHER QC	<u>N/A</u>
10. OVERALL ASSESSMENT	<u>M</u>

O = Data had no problems.
 M = Data qualified due to major or minor problems.
 Z = Data unacceptable.
 NA = Not applicable.

ACTION ITEMS:

AREAS OF CONCERN: Laboratory blank readings caused the qualification of 11 results. Twelve analytes had matrix spike recoveries below the QC limit. Three analytes had laboratory duplicate differences above the QC limit. Eight analytes had serial dilution differences above the QC limit.

**COMMENTS/CLARIFICATIONS
REGION 6 CLP QA REVIEW**

CASE 41486 SDG MF4N61 SITE West CR 112 Ground Water LAB SENTIN

COMMENTS: This SDG consisted of 19 water samples for total metals (by ICP-MS) analysis, excluding calcium and sodium, following SOW ISM01.2. The laboratory requested and received a waiver from the Region to exclude calcium and sodium because of the negative impacts of high concentrations of these two analytes on the life of the ICP-MS's detector. The sampler designated samples MF4N40 and MF4N63 for laboratory QC analyses. Since only one sample per SDG per matrix is required for laboratory QC, the laboratory performed QC analyses only on sample MF4N63 without contacting SMO.

The target analyte of concern was chromium with a desired detection limit of 2 ug/L. All samples met the user's desired detection limit criteria. Chromium was reported at concentrations over the user's desired detection limit for all samples except samples MF4N47 and MF4N48.

Modified CADRE Review was performed for this package as requested by the Region. For this review option, the CCS and CADRE primarily determine the laboratory contractual compliance and the technical usability of the sample results, respectively. The reviewer performs supplemental hardcopy forms checking and applies Region 6 guidelines, where necessary, to account for known limitations of the electronic review process. Therefore, the reviewer's final assessments may deviate from those found in the CADRE report. The CADRE narrative for the SDG is attached to this report as an addendum for additional information.

DATA ASSESSMENT: The QC problems affecting data usability are addressed below.

- Because of blank readings, the reviewer qualified the selenium results above the CRQL for samples MF4N22, MF4N24, MF4N25, MF4N26, MF4N47, MF4N48, MF4N63, MF4N64, and MF4N65 as undetected ("U"), and the reported concentrations should be used as raised quantitation limits ("C").
- Because of blank readings, the reviewer qualified the results above the CRQL as estimated and biased high for selenium in samples MF4N61 and MF4N66.
- As a result of laboratory blank readings, all results below the CRQLs for the following analytes should be considered undetected and were flagged "U" at the CRQLs on the DST: antimony, beryllium, cadmium, chromium, cobalt, lead, selenium, silver, and thallium.
- The reviewer qualified as estimated the results for the following analytes because pre-digestion matrix spike recoveries for these analytes were below 75 percent: antimony, arsenic, beryllium, chromium, cobalt, copper, manganese, nickel, selenium, silver, vanadium, and zinc. The post-digestion spike recoveries for beryllium and zinc indicated a bias effect. Therefore, with the exception of those raised to

**INORGANIC QA REVIEW
CONTINUATION PAGE**

CASE 41486 SDG MF4N61 SITE West CR 112 Ground Water LAB SENTIN

the CRQLs and "U"-flagged for laboratory blank evaluation, the results for beryllium and zinc were also qualified as low biased.

- The reviewer qualified the aluminum, iron, and zinc results as estimated because the associated laboratory duplicate differences exceeded the QC limits.
- The reviewer qualified as estimated the results for the following analytes because the associated serial dilution differences exceeded the QC limit: aluminum, barium, chromium, cobalt, iron, manganese, nickel, and vanadium.

OVERALL ASSESSMENT: Some results for all samples were qualified because of problems with laboratory blank readings, matrix spike recoveries, laboratory duplicate differences, and/or serial dilution differences. ESAT's final data qualifiers in the DST indicate the technical usability of all reported sample results. An Evidence Audit was conducted for the CSF, and the audit results were reported on the Evidence Inventory Checklist. The DST included in this report is the final version.

INORGANIC ACRONYMS

CADRE	Computer-Aided Data Review and Evaluation
CCB	Continuing Calibration Blank
CCS	Contract Compliance Screening
CCV	Continuing Calibration Verification
CN	Cyanide
CRQL	Contract Required Quantitation Limit
CSF	Complete SDG File
DST	Data Summary Table
HG	Mercury
ICB	Initial Calibration Blank
ICP	Inductively Coupled Plasma
ICP-AES	Inductively Coupled Plasma-Atomic Emission Spectroscopy
ICP-MS	Inductively Coupled Plasma-Mass Spectrometry
ICS	Interference Check Sample
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
MDL	Method Detection Limit
NFG	National Functional Guidelines
PE	Performance Evaluation
%D	Percent Difference
%R	Percent Recovery
%RI	Percent Relative Intensity
%RSD	Percent Relative Standard Deviation
QA	Quality Assurance
QC	Quality Control
QL	Quantitation Limit
RPD	Relative Percent Difference
RSCC	Regional Sample Control Center
SDG	Sample Delivery Group
SMO	Sample Management Office
SOW	Statement of Work
SQL	Sample Quantitation Limit
TAL	Target Analyte List

HEADER DEFINITIONS FOR INORGANIC EXCEL DST

CASE: Case Number
SDG: SDG Number
EPASAMP: EPA Sample Number
LABID: Laboratory File/Sample ID
MATRIX: Sample Matrix
QCCOD: Sample QC Code
SMPQUAL: Sample Qualifier
ANDATE: Sample Analysis Date
ANTIME: Sample Analysis Time
CASNUM: Compound CAS Number
ANALYTE: Compound Name
CONC: Compound Concentration
VALDQAL: Region 6 Inorganic Data Validation Qualifier (see Inorganic
Data Qualifier Definitions on the next page)
UNITS: Concentration Units
ADJCRQL: Adjusted Contract Required Quantitation Limit Value
SMPDATE: Sampling Date
PRPDATE: Sample Preparation Date
LRDATE: Laboratory Receipt Date
LEVEL: Sample Level
PERSOLD: Sample Percent Solids
SMPWTVL: Sample Weight (Soil Samples)/Initial Sample Volume (Water
Samples)
FINLVOL: Final Sample Volume
METHOD: Method of Analysis
STATLOC: Station Location

Disclaimer: ESAT verified the accuracy of the information reported in the Excel DST only for the following data fields: CASE, SDG, EPASAMP, MATRIX, ANALYTE, CONC, UNITS, ADJCRQL, VALDQAL, and PERSOLD. The data qualifiers in the VALDQAL column indicate the technical usability of the reported results.

INORGANIC DATA QUALIFIER DEFINITIONS

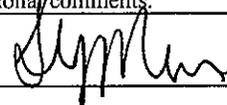
The following definitions provide brief explanations of the ESAT-Region 6 qualifiers assigned to results in the Data Summary Table.

- U** Not detected at reported quantitation limit.
- L** Reported concentration is between the MDL and the CRQL.
- J** Result is estimated because of outlying quality control parameters such as matrix spike, serial dilution, etc., or the result is below the CRQL.
- R** Result is unusable.
- F** A possibility of a false negative exists.
- UC** Reported concentration should be used as a raised quantitation limit because of blank effects and/or laboratory or field contamination.
- +** High biased. Actual concentration may be lower than the concentration reported.
- Low biased. Actual concentration may be higher than the concentration reported.
- W** The result should be used with caution. The result was reported on a dry weight basis although the sample did not conform to the EPA Office of Water definition of a soil sample because of its high water content (>70% moisture).

INORGANIC/ORGANIC COMPLETE SDG FILE (CSF) INVENTORY CHECKLIST

Case No. <u>41486</u>	SDG No. <u>MF4N61</u>	SDG Nos. To Follow	Mod. Ref. No.	Date Rec <u>07/05/11</u>		
EPA Lab ID: <u>SENTIN</u>	ORIGINALS			YES	NO	N/A
Lab location: <u>Huntsville, AL</u>	CUSTODY SEALS					
Region: <u>6</u> Audit No.: <u>41486/MF4N61</u>	1. Present on package?			X		
Resubmitted CSF? Yes _____ No <u>X</u>	2. Intact upon receipt?			X		
Box No(s): <u>1</u>	FORM DC-2					
COMMENTS: 18/18a The traffic reports on pp. 8 & 9 and airbills on pp. 215 & 216 are photocopies, but the location of the original data was not indicated. The reviewer located the originals in SDG MF4N05.	3. Numbering scheme accurate?			X		
	4. Are enclosed documents listed?			X		
	5. Are listed documents enclosed?			X		
	FORM DC-1					
	6. Present?			X		
	7. Complete?			X		
	8. Accurate?			X		
	TRAFFIC REPORT/CHAIN-OF-CUSTODY RECORD(s)					
	9. Signed?			X		
	10. Dated?			X		
	AIRBILLS/AIRBILL STICKER					
	11. Present?			X		
	12. Signed?			X		
	13. Dated?			X		
	SAMPLE TAGS					
	14. Does DC-1 list tags as being included?			X		
	15. Present?			X		
	OTHER DOCUMENTS					
16. Complete?			X			
17. Legible?			X			
18. Original?				X		
18a. If "NO", does the copy indicate where original documents are located?				X		

Over for additional comments

Audited 
 Audited _____
 Signature

Sonya Meekins/ESAT Data Reviewer

 Printed Name/Title

Date 8/17/2011

 Date

DC-2

EPA USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 41486
 DAS No: R

Region: 6 Project Code: EP-W-06-004 Account Code: CERCLIS ID: Spill ID: Site Name/State: WEST COUNTY ROAD 112 GROUND WA Project Leader: LUIS VEGA Action: Combined RI/FS Sampling Co: EA Engineering	Date Shipped: 6/21/2011 Carrier Name: FedEx Airbill: 7948 7979 6942 Shipped to: Sentinel Inc. 4733 Commercial Drive Huntsville AL 35816 (256) 534-9800	Chain of Custody Record Relinquished By (Date / Time) Received By (Date / Time) 1 <i>John Hood</i> 6/21/11 18:00 2 3 4	Sampler Signature: <i>Dwaine Beard</i>
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INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MF4N12	Ground Water/ DWAINE BEARD	L/G	TM ISM01.2 (21)	6455827 (HNO3) (1)	LMW-A	S: 6/21/2011 11:29		-
MF4N13	Ground Water/ DWAINE BEARD	L/G	TM ISM01.2 (21)	6455828 (HNO3) (1)	LMW-A DUP	S: 6/21/2011 11:29		Field Duplicate
MF4N27	Ground Water/ DUANE THOMAS	L/G	TM ISM01.2 (21)	6455842 (HNO3) (1)	WMW-03A	S: 6/21/2011 13:20		-
MF4N28	Ground Water/ DUANE THOMAS	L/G	TM ISM01.2 (21)	6455843 (HNO3) (1)	WMW-03B	S: 6/21/2011 13:55		-
MF4N39	Ground Water/ DUANE THOMAS	L/G	TM ISM01.2 (21)	6455855 (HNO3) (1)	WMW-11A	S: 6/21/2011 14:45		-
MF4N41	Ground Water/ RESHMA HOODA	L/G	TM ISM01.2 (21)	6455833 (HNO3) (1)	WMW-12A	S: 6/21/2011 15:00		-
MF4N61	Ground Water/ DUANE THOMAS	L/G	TM ISM01.2 (21)	6455879 (HNO3) (1)	WMW-26A	S: 6/21/2011 10:30		-
MF4N62	Ground Water/ DUANE THOMAS	L/G	TM ISM01.2 (21)	6455880 (HNO3) (1)	WMW-26B	S: 6/21/2011 11:20		-

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s): <i>John Hood</i>	Chain of Custody Seal Number:
Analysis Key: TM ISM01.2 = TM ISM01.2 / ICP-MS	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

TR Number: 6-042412979-062111-0002

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**USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record**

Case No:	41486	R
DAS No:		

Region:	6	Date Shipped:	6/21/2011	Chain of Custody Record	Sampler Signature:	<i>Dwaine Beard</i>	
Project Code:	EP-W-06-004	Carrier Name:	FedEx		Relinquished By	(Date / Time)	Received By
Account Code:		Airbill:	7948 7979 3597	1	<i>Relinquished 6/21/11 1800</i>		
CERCLIS ID:		Shipped to:	Sentinel Inc. 4733 Commercial Drive Huntsville AL 35816 (256) 534-9800	2			
Spill ID:				3			
Site Name/State:	WEST COUNTY ROAD 112 GROUND WA			4			
Project Leader:	LUIS VEGA						
Action:	Combined RI/FS						
Sampling Co:	EA Engineering						

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MF4N45	Ground Water/ DWAINE BEARD	L/G	TM ISM01.2 (21)	6455883 (HNO3) (1)	WMW-19A	S: 6/20/2011 16:05		--
MF4N46	Ground Water/ DWAINE BEARD	L/G	TM ISM01.2 (21)	6455864 (HNO3) (1)	WMW-19B	S: 6/20/2011 17:02		--
MF4N49	Ground Water/ DWAINE BEARD	L/G	TM ISM01.2 (21)	6455867 (HNO3) (1)	WMW-20B	S: 6/21/2011 9:49		--
MF4N57	Ground Water/ DUANE THOMAS	L/G	TM ISM01.2 (21)	6455875 (HNO3) (1)	WMW-24A	S: 6/20/2011 15:40		--
MF4N58	Ground Water/ DUANE THOMAS	L/G	TM ISM01.2 (21)	6455876 (HNO3) (1)	WMW-24B	S: 6/20/2011 16:35		--
MF4N63	Ground Water/ DUANE THOMAS	L/G	TM ISM01.2 (21)	6455881 (HNO3), 6455882 (HNO3) (2)	WMW-28A	S: 6/21/2011 8:45		Lab QC
MF4N64	Ground Water/ DUANE THOMAS	L/G	TM ISM01.2 (21)	6455883 (HNO3) (1)	WMW-28B	S: 6/21/2011 9:30		--

Shipment for Case Complete? <input type="checkbox"/> N	Sample(s) to be used for laboratory QC: MF4N63	Additional Sampler Signature(s): <i>[Signature]</i>	Chain of Custody Seal Number:
Analysis Key: TM ISM01.2 = TM ISM01.2 / ICP-MS	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? <input type="checkbox"/>

TR Number: 6-042412979-062111-0001

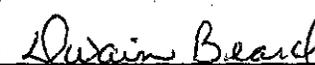
REGION COPY

EPA USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 41486
 DAS No: R

Region: 6 Project Code: EP-W-06-004 Account Code: CERCLIS ID: Spill ID: Site Name/State: WEST COUNTY ROAD 112 GROUND WA Project Leader: LUIS VEGA Action: Combined RI/FS Sampling Co: EA Engineering	Date Shipped: 6/22/2011 Carrier Name: FedEx Airbill: 7972 2040 4977 Shipped to: Sentinel Inc. 4733 Commercial Drive Huntsville AL 35816 (256) 534-9800	Chain of Custody Record Relinquished By (Date / Time) Sampler Signature:  Received By (Date / Time) <i>Nidauff/Pool 6/22/11 (6:00)</i> 2 3 4
--	--	---

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MF4N22	Ground Water/ DWAINE BEARD	L/G	TM ISM01.2 (21)	6455837 (HNO3) (1)	WMW-01A	S: 6/21/2011 17:25		--
MF4N23	Ground Water/ DWAINE BEARD	L/G	TM ISM01.2 (21)	6455838 (HNO3) (1)	WMW-01B	S: 6/21/2011 18:17		--
MF4N33	Ground Water/ DUANE THOMAS	L/G	TM ISM01.2 (21)	6455848 (HNO3) (1)	WMW-06A	S: 6/21/2011 16:25		--
MF4N34	Ground Water/ DUANE THOMAS	L/G	TM ISM01.2 (21)	6455849 (HNO3) (1)	WMW-06B	S: 6/21/2011 16:55		--
MF4N40	Ground Water/ DUANE THOMAS	L/G	TM ISM01.2 (21)	6455854 (HNO3), 6455856 (HNO3) (2)	WMW-11B	S: 6/21/2011 15:30		Lab QC
MF4N65	Ground Water/ DWAINE BEARD	L/G	TM ISM01.2 (21)	6455884 (HNO3) (1)	WMW-30A	S: 6/21/2011 14:03		--
MF4N66	Ground Water/ DWAINE BEARD	L/G	TM ISM01.2 (21)	6455885 (HNO3) (1)	WMW-30B	S: 6/21/2011 15:02		--

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: MF4N40	Additional Sampler Signature(s): 	Chain of Custody Seal Number:
Analysis Key: TM ISM01.2 = TM ISM01.2 / ICP-MS	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____



**USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record**

Case No: 41486

DAS No:

R

Region: 6	Date Shipped: 6/22/2011	Chain of Custody Record	Sampler Signature: <i>Dwaine Beard</i>
Project Code: EP-W-06-004	Carrier Name: FedEx		Relinquished By (Date / Time)
Account Code:	Airbill: 7948 7980 3032	1 <i>Perlu... 6/22/11 1800</i>	
CERCLIS ID:	Shipped to: Sentinel Inc. 4733 Commercial Drive Huntsville AL 35816 (256) 534-9800	2	
Spill ID:		3	
Site Name/State: WEST COUNTY ROAD 112 GROUND WA		4	
Project Leader: LUIS VEGA			
Action: Combined RI/FS			
Sampling Co: EA Engineering			

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MF4N16	Ground Water/ DWAINE BEARD	L/G	TM ISM01.2 (21)	6455831 (HNO3) (1)	LMW-4	S: 6/21/2011 16:18		--
MF4N24	Ground Water/ DWAINE BEARD	L/G	TM ISM01.2 (21)	6455839 (HNO3) (1)	WMW-02A	S: 6/22/2011 9:14		--
MF4N25	Ground Water/ DWAINE BEARD	L/G	TM ISM01.2 (21)	6455840 (HNO3) (1)	WMW-02B	S: 6/22/2011 10:08		--
MF4N26	Ground Water/ DWAINE BEARD	L/G	TM ISM01.2 (21)	6455841 (HNO3) (1)	WMW-02B DUP	S: 6/22/2011 10:08		Field Duplicate
MF4N47	Ground Water/ DWAINE BEARD	L/G	TM ISM01.2 (21)	6455865 (HNO3) (1)	WMW-20A	S: 6/22/2011 13:39		--
MF4N48	Ground Water/ DWAINE BEARD	L/G	TM ISM01.2 (21)	6455866 (HNO3) (1)	WMW-20A DUP	S: 6/22/2011 13:39		Field Duplicate
MF4N55	Ground Water/ DUANE THOMAS	L/G	TM ISM01.2 (21)	6455873 (HNO3) (1)	WMW-23A	S: 6/22/2011 9:10		--
MF4N56	Ground Water/ DUANE THOMAS	L/G	TM ISM01.2 (21)	6455874 (HNO3) (1)	WMW-23B	S: 6/22/2011 9:50		--

DWAINE BEARD

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s): <i>[Signature]</i>	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____
TM ISM01.2 = TM ISM01.2/ICP-MS			

TR Number: 6-042412979-062211-0002

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PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Sample Management Office, 15000 Conference Center Dr., Chantilly, VA. 20151-3819 Phone 703/818-4200; Fax 703/818-4602

ADDENDUM

CADRE NARRATIVE

National Functional Guidelines Report #03

Lab SENTIN(SENTINEL) SDG MF4N61 Case 41486 Contract EPW09040 Region 6 DDTID 125316 SOW ISM01.2

Data Review Reports

Blanks

Blanks	ICP_MS
ND03	The following samples have analyte results greater than or equal to MDLs but less than CRQLs. The associated ICB analyte results are greater than or equal to MDLs but less than or equal to CRQLs. Detected analytes are qualified U. Nondetected analytes are not qualified. Sample results are elevated to CRQLs.
	PBW, MF4N61, MF4N62, MF4N63L, MF4N63, MF4N63D, MF4N64, MF4N16, MF4N22, MF4N23, MF4N24, MF4N47, MF4N25, MF4N48, MF4N26, MF4N33, MF4N34, MF4N40, MF4N55, MF4N56, MF4N65, MF4N66
	Arsenic PBW
	Antimony MF4N61, MF4N62, MF4N63L, MF4N63, MF4N63D, MF4N64, MF4N16, MF4N22, MF4N23, MF4N24, MF4N47, MF4N25, MF4N48, MF4N26, PBW, MF4N33, MF4N34, MF4N40, MF4N55, MF4N56, MF4N65, MF4N66
	Thallium MF4N61, MF4N62, MF4N63, MF4N63D, MF4N22, MF4N25, MF4N26, PBW, MF4N33, MF4N55
	Cadmium MF4N61, MF4N62, MF4N63, MF4N63L, MF4N63D, MF4N22, MF4N47, MF4N25, MF4N26, MF4N33, MF4N34, MF4N40, MF4N55, MF4N65
Blanks	ICP_MS
ND04	The following samples have analyte results greater than or equal to MDLs but less than CRQLs. The associated CCB analyte results are greater than or equal to MDLs but less than or equal to CRQLs. Detected analytes are qualified U. Nondetected analytes are not qualified. Sample results are elevated at CRQLs.
	PBW, MF4N47, MF4N48, MF4N63L, MF4N64, MF4N16, MF4N22, MF4N23, MF4N24, MF4N33, MF4N34, MF4N40, MF4N56, MF4N66, MF4N62, MF4N55, MF4N61, MF4N63, MF4N63D, MF4N25, MF4N26, MF4N65
	Arsenic PBW
	Chromium MF4N47, MF4N48
	Potassium PBW
	Lead MF4N63L, MF4N64, MF4N16, MF4N22, MF4N23, MF4N24, MF4N47, MF4N48, MF4N33, MF4N34, MF4N40, MF4N56, MF4N66
	Sodium PBW
	Selenium MF4N62, MF4N63L, MF4N16, MF4N23, PBW, MF4N55, MF4N56
	Barium MF4N63L
	Cobalt MF4N63L, MF4N16, MF4N22, MF4N23, MF4N24, MF4N47, MF4N48, MF4N34, MF4N40, MF4N56
	Beryllium MF4N61, MF4N62, MF4N63, MF4N63D, MF4N64, MF4N25, MF4N26, MF4N55, MF4N65
	Antimony MF4N61, MF4N62, MF4N63L, MF4N63, MF4N63D, MF4N64, MF4N16, MF4N22, MF4N23, MF4N24, MF4N40, MF4N47, MF4N25, MF4N48, MF4N26, PBW, MF4N33, MF4N34, MF4N55, MF4N56, MF4N65, MF4N66
	Cadmium MF4N61, MF4N62, MF4N63, MF4N63L, MF4N63D, MF4N22, MF4N47, MF4N25, MF4N26, MF4N33, MF4N34, MF4N40, MF4N55, MF4N65
	Thallium MF4N61, MF4N62, MF4N63, MF4N63D, MF4N22, MF4N25, MF4N26, PBW, MF4N33, MF4N55
	Silver MF4N63
Blanks	ICP_MS
ND05	The following samples have analyte results greater than CRQLs. The associated ICB analyte results are greater than or equal to MDLs but less than or

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Blanks

Blanks	ICP_MS
	equal to CRQLs. Use professional judgment to qualified detected and nondetected analytes.
	MF4N63A, MF4N61, MF4N62, MF4N63, MF4N63L, MF4N63D, MF4N63S, MF4N64, MF4N16, MF4N22, MF4N23, MF4N24, MF4N47, MF4N25, MF4N48, MF4N55, MF4N26, LCS, MF4N33, MF4N34, MF4N40, MF4N56, MF4N65, MF4N66
	Vanadium MF4N63A
	Selenium MF4N63A
	Arsenic MF4N61, MF4N62, MF4N63, MF4N63L, MF4N63D, MF4N63S, MF4N64, MF4N63A, MF4N16, MF4N22, MF4N23, MF4N24, MF4N47, MF4N25, MF4N48, MF4N55, MF4N26, LCS, MF4N33, MF4N34, MF4N40, MF4N56, MF4N65, MF4N66
	Chromium MF4N63A
	Cobalt MF4N63A
	Antimony MF4N63S, MF4N63A, LCS
	Thallium MF4N63S, LCS
	Cadmium MF4N63S, LCS
	Manganese MF4N63A
Blanks	ICP_MS
ND06	The following samples have analyte results greater than CRQLs. The associated CCB analyte results are greater than or equal to MDLs but less than or equal to CRQLs. Use professional judgment to qualified detected and nondetected analytes.
	MF4N63A, MF4N61, MF4N62, MF4N63, MF4N63L, MF4N63D, MF4N63S, MF4N64, MF4N16, MF4N22, MF4N23, MF4N24, MF4N47, MF4N25, MF4N48, MF4N26, LCS, MF4N33, MF4N34, MF4N40, MF4N55, MF4N56, MF4N65, MF4N66
	Vanadium MF4N63A
	Arsenic MF4N61, MF4N62, MF4N63, MF4N63L, MF4N63D, MF4N63S, MF4N64, MF4N63A, MF4N16, MF4N22, MF4N23, MF4N24, MF4N47, MF4N25, MF4N48, MF4N26, LCS, MF4N33, MF4N34, MF4N40, MF4N55, MF4N56, MF4N65, MF4N66
	Chromium MF4N61, MF4N62, MF4N63, MF4N63L, MF4N63D, MF4N63S, MF4N64, MF4N63A, MF4N16, MF4N22, MF4N23, MF4N24, MF4N25, MF4N26, LCS, MF4N33, MF4N34, MF4N40, MF4N55, MF4N56, MF4N65, MF4N66
	Nickel MF4N63A
	Potassium MF4N61, MF4N62, MF4N63, MF4N63L, MF4N63D, MF4N64, MF4N16, MF4N22, MF4N23, MF4N24, MF4N47, MF4N25, MF4N48, MF4N26, LCS, MF4N33, MF4N34, MF4N40, MF4N55, MF4N56, MF4N65, MF4N66
	Copper MF4N63A
	Sodium LCS, MF4N56
	Selenium MF4N61, MF4N63A, MF4N63, MF4N63L, MF4N63S, MF4N63D, MF4N64, MF4N22, MF4N24, MF4N40, MF4N47, MF4N25, MF4N48, MF4N26, LCS, MF4N33, MF4N34, MF4N65, MF4N66
	Cobalt MF4N61, MF4N62, MF4N63, MF4N63L, MF4N63D, MF4N63S, MF4N64, MF4N63A, MF4N25, MF4N26, LCS, MF4N33, MF4N55, MF4N65, MF4N66
	Aluminum MF4N61, MF4N62, MF4N63, MF4N63L, MF4N63D, MF4N64, MF4N16, MF4N22, MF4N23, MF4N24, MF4N47, MF4N25, MF4N48, MF4N55, MF4N26, MF4N33, MF4N34, MF4N40, MF4N56, MF4N65, MF4N66, LCS

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Blanks

Blanks	ICP_MS
	Beryllium MF4N63S , MF4N63A , LCS
	Antimony MF4N63S , MF4N63A , LCS
	Thallium MF4N63S , LCS
	Cadmium MF4N63S , LCS
	Magnesium MF4N61 , MF4N62 , MF4N63L , MF4N63 , MF4N63D , MF4N64 , MF4N16 , MF4N22 , MF4N23 , MF4N24 , MF4N47 , MF4N25 , MF4N48 , MF4N26 , LCS , MF4N33 , MF4N34 , MF4N40 , MF4N55 , MF4N56 , MF4N65 , MF4N66
	Manganese MF4N63A
	Silver MF4N63S , MF4N63A , LCS
Blanks	ICP_MS
NE04	The following samples have analyte results greater than or equal to MDLs but less than or equal to CRQLs. The associated preparation blank analyte results are greater than or equal to MDLs but less than or equal to CRQLs. Detected analytes are qualified U. Nondetected analytes are not qualified. Sample results are elevated to CRQLs.
	MF4N62 , MF4N16 , MF4N23 , MF4N55 , MF4N56 , MF4N61 , MF4N63 , MF4N63D , MF4N64 , MF4N22 , MF4N40 , MF4N24 , MF4N25 , MF4N47 , MF4N48 , MF4N26 , MF4N33 , MF4N34 , MF4N65 , MF4N66
	Selenium MF4N62 , MF4N16 , MF4N23 , MF4N55 , MF4N56
	Antimony MF4N61 , MF4N62 , MF4N63 , MF4N63D , MF4N64 , MF4N16 , MF4N22 , MF4N23 , MF4N40 , MF4N24 , MF4N25 , MF4N47 , MF4N48 , MF4N26 , MF4N33 , MF4N34 , MF4N55 , MF4N56 , MF4N65 , MF4N66
	Thallium MF4N61 , MF4N62 , MF4N63 , MF4N63D , MF4N22 , MF4N25 , MF4N26 , MF4N33 , MF4N55
Blanks	ICP_MS
NE05	The following samples have analyte results greater than CRQLs. The associated preparation blank analyte results are greater than or equal to MDLs but less than or equal to CRQLs. Use professional judgment to qualify detected and nondetected analytes.
	LCS , MF4N56 , MF4N61 , MF4N63A , MF4N63 , MF4N63D , MF4N63S , MF4N64 , MF4N22 , MF4N40 , MF4N24 , MF4N47 , MF4N48 , MF4N25 , MF4N26 , MF4N33 , MF4N34 , MF4N65 , MF4N66 , MF4N62 , MF4N63L , MF4N16 , MF4N23 , MF4N55
	Sodium LCS , MF4N56
	Selenium MF4N61 , MF4N63A , MF4N63 , MF4N63D , MF4N63S , MF4N64 , MF4N22 , MF4N40 , MF4N24 , MF4N47 , MF4N48 , MF4N25 , MF4N26 , LCS , MF4N33 , MF4N34 , MF4N65 , MF4N66
	Arsenic MF4N61 , MF4N63A , MF4N62 , MF4N63 , MF4N63L , MF4N63S , MF4N63D , MF4N64 , MF4N16 , MF4N22 , MF4N23 , MF4N24 , MF4N40 , MF4N47 , MF4N25 , MF4N48 , MF4N26 , LCS , MF4N33 , MF4N34 , MF4N55 , MF4N56 , MF4N65 , MF4N66
	Antimony MF4N63A , MF4N63S , LCS
	Potassium MF4N61 , MF4N62 , MF4N63 , MF4N63L , MF4N63D , MF4N64 , MF4N16 , MF4N22 , MF4N23 , MF4N40 , MF4N24 , MF4N25 , MF4N47 , MF4N48 , MF4N26 , LCS , MF4N33 , MF4N34 , MF4N55 , MF4N56 , MF4N65 , MF4N66
	Thallium MF4N63S , LCS

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Detection Limit

Detection Limit	ICP_MS
NDL1	The following samples have results greater than or equal to MDLs but less than CRQLs. Detected analytes are qualified J.
	PBW, MF4N47, MF4N48, MF4N63L, MF4N16, MF4N22, MF4N40, MF4N24, MF4N56, MF4N65, MF4N64, MF4N23, MF4N33, MF4N34, MF4N66, MF4N62, MF4N55, MF4N61, MF4N63, MF4N63D, MF4N25, MF4N26
	Arsenic PBW
	Chromium MF4N47, MF4N48
	Potassium PBW
	Copper MF4N63L, MF4N16, MF4N22, MF4N40, MF4N47, MF4N24, MF4N48, MF4N56, MF4N65
	Lead MF4N63L, MF4N64, MF4N16, MF4N22, MF4N23, MF4N40, MF4N24, MF4N47, MF4N48, MF4N33, MF4N34, MF4N56, MF4N66
	Sodium PBW
	Selenium MF4N62, MF4N63L, MF4N16, MF4N23, PBW, MF4N55, MF4N56
	Barium MF4N63L
	Cobalt MF4N63L, MF4N16, MF4N22, MF4N23, MF4N40, MF4N47, MF4N24, MF4N48, MF4N34, MF4N56
	Beryllium MF4N61, MF4N62, MF4N63, MF4N63D, MF4N64, MF4N25, MF4N26, MF4N55, MF4N65
	Zinc MF4N16, MF4N24
	Antimony MF4N61, MF4N62, MF4N63, MF4N63L, MF4N63D, MF4N64, MF4N16, MF4N22, MF4N23, MF4N40, MF4N24, MF4N47, MF4N48, MF4N25, MF4N26, MF4N33, PBW, MF4N34, MF4N55, MF4N56, MF4N65, MF4N66
	Cadmium MF4N61, MF4N62, MF4N63, MF4N63L, MF4N63D, MF4N22, MF4N40, MF4N47, MF4N25, MF4N26, MF4N33, MF4N34, MF4N55, MF4N65
	Thallium MF4N61, MF4N62, MF4N63, MF4N63D, MF4N22, MF4N25, MF4N26, MF4N33, PBW, MF4N55
	Silver MF4N63
	Iron MF4N16, MF4N22, MF4N23, MF4N40, MF4N24, MF4N47, MF4N48, MF4N34, MF4N56

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Data Review Reports

Duplicates

Duplicates	ICP_MS
NI03	The following Duplicate and original sample results are greater than 5xCRQL and RPD is greater than 20. The original sample results are greater than or equal to MDLs. Detected analytes are qualified J. Nondetected analytes are qualified UJ.
	MF4N61, MF4N62, MF4N63, MF4N64, MF4N16, MF4N22, MF4N23, MF4N24, MF4N25, MF4N26, MF4N33, MF4N34, MF4N40, MF4N47, MF4N48, MF4N55, MF4N56, MF4N65, MF4N66
	Aluminum MF4N63D
	Iron MF4N63D
Duplicates	ICP_MS
NI04	The following Duplicate or original sample results are less than or equal to 5xCRQL and the absolute difference between duplicate and original samples are greater than CRQL. The original sample results are greater than or equal to MDLs. Detected analytes are qualified J. Nondetected analytes are qualified UJ.
	MF4N61, MF4N62, MF4N63, MF4N64, MF4N16, MF4N22, MF4N23, MF4N24, MF4N25, MF4N26, MF4N33, MF4N34, MF4N40, MF4N47, MF4N48, MF4N55, MF4N56, MF4N65, MF4N66
	Zinc MF4N63D

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Holding Times/Preservation

Holding Times/Preservation	ICP_MS
NHT01	The following preserved samples are improperly maintained at temperatures outside the range of 4+/-2 C. Detected analytes with results greater than or equal to MDLs are qualified J-. Use professional judgment to qualify the nondetected analytes.
	MF4N61, MF4N62, MF4N63, MF4N63L, MF4N63D, MF4N63S, MF4N64, MF4N63A, MF4N16, MF4N22, MF4N23, MF4N24, MF4N47, MF4N25, MF4N48, MF4N55, MF4N26, MF4N33, MF4N34, MF4N40, MF4N56, MF4N65, MF4N66

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Data Review Reports

Matrix Spikes

Matrix Spikes	ICP_MS
NG054	The following ICP-MS samples are not qualified due to missing the required Post-digestion spike added in the Spike sample analysis.
	MF4N61, MF4N62, MF4N63, MF4N64, MF4N16, MF4N22, MF4N23, MF4N24, MF4N25, MF4N26, MF4N33, MF4N34, MF4N40, MF4N47, MF4N48, MF4N55, MF4N56, MF4N65, MF4N66
	Vanadium MF4N63A
	Selenium MF4N63A
	Arsenic MF4N63A
	Chromium MF4N63A
	Cobalt MF4N63A
	Zinc MF4N63A
	Nickel MF4N63A
	Beryllium MF4N63A
	Antimony MF4N63A
	Copper MF4N63A
	Manganese MF4N63A
	Silver MF4N63A
Matrix Spikes	ICP_MS
NG10	The following Matrix Spike samples have percent recoveries in the range of 30-74% and post-digestion spike samples have percent recoveries less than 75%. Detected analytes with results greater than or equal to MDLs are qualified J-. Nondetected analytes are qualified UJ.
	MF4N61, MF4N62, MF4N63, MF4N64, MF4N16, MF4N22, MF4N23, MF4N24, MF4N25, MF4N26, MF4N33, MF4N34, MF4N40, MF4N47, MF4N48, MF4N55, MF4N56, MF4N65, MF4N66
	Zinc MF4N63S
	Beryllium MF4N63S
Matrix Spikes	ICP_MS
NG11	The following Matrix Spike samples have percent recoveries in the range of 30-74% and post-digestion spike samples have percent recoveries greater than or equal to 75%. Detected analytes with results greater than or equal to MDLs are qualified J. Nondetected analytes are qualified UJ.
	MF4N61, MF4N62, MF4N63, MF4N64, MF4N16, MF4N22, MF4N23, MF4N24, MF4N25, MF4N26, MF4N33, MF4N34, MF4N40, MF4N47, MF4N48, MF4N55, MF4N56, MF4N65, MF4N66
	Vanadium MF4N63S
	Selenium MF4N63S
	Arsenic MF4N63S
	Chromium MF4N63S

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Matrix Spikes

Matrix Spikes	ICP_MS
	Cobalt MF4N63S
	Nickel MF4N63S
	Antimony MF4N63S
	Copper MF4N63S
	Manganese MF4N63S
	Silver MF4N63S

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Data Review Reports

Serial Dilution

Serial Dilution	ICP_MS
NL032	The following ICP-MS Serial Dilution (SD) samples have percent difference (%D) greater than 10% and initial sample results are greater than 50xMDLs. The detected analytes in samples with results greater than or equal to MDLs are qualified J. Nondetected analytes in samples are qualified UJ.
	MF4N61, MF4N62, MF4N63, MF4N64, MF4N16, MF4N22, MF4N23, MF4N24, MF4N25, MF4N26, MF4N33, MF4N34, MF4N40, MF4N47, MF4N48, MF4N55, MF4N56, MF4N65, MF4N66
	Vanadium MF4N63L
	Chromium MF4N63L
	Cobalt MF4N63L
	Barium MF4N63L
	Nickel MF4N63L
	Aluminum MF4N63L
	Manganese MF4N63L
	Iron MF4N63L